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Contentious Vulnerability: Infrastructure, Assemblages, and Environmental Justice Communities

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Infrastructure, Assemblages, and Environmental Justice Communities

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Abstract:

Charles City County, Virginia has been the target of several large developmental proposals in recent years. Two of these proposed projects, the C4GT and Chickahominy natural gas power stations, have faced opposition from residents of Charles City County and people across the state who are concerned about the environmental impacts and health risks associated with fossil fuel infrastructure. These proposed power plants are part of an extensive assemblage of infrastructure: an uneven built network of physical and affective relationships brought together through contingencies which involves human and non-human parts and facilitates the distribution of resources and people around the world (Bennett 2005). From March 2020 until the present, I have conducted ethnographic research investigating the contention surrounding the two power plants in Charles City County, primarily through digital fieldwork. I focus on the ways that space, knowledge, and futurities are invoked and produced in the various relationships and interactions that constitute this contention. I argue that the two facilities reflect the uneven distribution of infrastructure both locally (in Charles City County) and around the world, which produces environmental injustice in patterns that reflect unequal social differences produced in racial capitalism. Additionally, I argue that the contention surrounding these two plants represents a more general contention about how the effects of fossil fuel infrastructure are defined and who gets to define them that is reflected across the world.

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Introduction

In September 2016 the Virginia State Corporation Commission (SCC) received an initial application for a certificate of public convenience and necessity for C4GT, a 1060 megawatt

natural gas power plant that the company hoped to build in Charles City County, Virginia. When the SCC granted the certificate, C4GT set an initial start-of-operation date of March 31st, 2020. However, once Charles City County residents were made aware of the proposed power plant, they expressed concerns about the location, economic benefits and impacts, potential health risks, and environmental consequences of C4GT.

These concerns were exacerbated when the State Air Pollution Control Board, a sub-department of the Department of Environmental Quality, approved a permit for Chickahominy Power LLC to build a 1650 megawatt natural gas power plant less than a mile away from the proposed C4GT facility. In June 2019 residents of Charles City formed the Concerned Citizens of Charles City County as a way to coordinate communication and resistance in response to the two planned power plants. These responses were (and continue to be) extremely varied. Some of them include invocations of Charles City County's particular histories, calls for environmental and infrastructural justice, and concerns about the immediate local impacts of the two power plants, as well as what they signify about the future of individuals, the county, and (more generally) the world. Intertwined in all of these is a repeatedly expressed need for transparency from the companies and the state and local governments as well as public involvement in the permitting and review processes of the two facilities.

Though neither has become operational yet, the Chickahominy and C4GT power plants are two pieces in an assemblage of proposed, developing, and pre-existent infrastructure that stretches well beyond Charles City County and involves active material and affective relationalities. As part of my thesis, I aim to write in a way that pushes back against the deep and violent assumption that the construction of any infrastructural project (and the ones in Charles City County specifically) is inevitable. Though infrastructural projects are built through

processes of negotiation that do sometimes involve construction and operation, they can be contested, destroyed, or made obsolete both prior to and following their construction. Approaching the two natural gas power plants (and associated infrastructure) with this in mind, I have explored some of the various relationalities they are involved in, as well as the experiences, activities, and impacts associated with them from several perspectives. I want to stress that what I have written here is not a universal, complete, or closed discussion of the infrastructure in Charles City County. The viewpoints, contentions, experiences, conditions, relationships, and feelings that have been made visible in the fight against the C4GT and Chickahominy power plants are all ongoing and are not reducible to one analysis.

In this thesis, I will make two overarching arguments. First, I will argue that Charles City County is an example of the uneven distribution of fossil fuel infrastructure, which produces environmental injustice in parallel to the unequal social differentiations that are produced in and necessary for racial capitalism. Within this argument, I will also argue that the incorporation of the language of environmental justice into Virginia's state energy policy did not and will not end environmental racism. Instead, it has turned environmental justice into a justification for the decisions made by various people and transformed (and in doing so, neutralized) the process of determining whether a project has environmental justice concerns, establishing standardized definitions of harm, vulnerability, and environmental injustice. Second, I will argue that the discussion surrounding C4GT and the Chickahominy Power Station reveals a more general contention about how group vulnerability and the effects of fossil fuel infrastructure are defined, as well as pervasive anxieties and sentiments that are not exclusive to Charles City County.

I will explore both of the overarching arguments in this paper intertwined through three sections, each with their own smaller arguments. First, I will discuss spatial production in

Charles City County and the creation of "environmental justice communities", a concept invoked both by residents of Charles City County and by the state. Second, I will examine some of the competing forms of environmental knowledge and descriptions of groups of people forwarded by various people and institutions who are involved in the fight over the two power plants. Finally, I will explore some of the things that infrastructures signify in Charles City County and how those things reflect or are reflected in different ideas of what the future will look like.

Methods

When I initially planned this research, I thought I would spend Summer 2020 attending public hearings, interviewing people in person, and documenting the interactions between various representatives of the state, spokespeople from fossil fuel companies, and residents of places that would be impacted by planned energy infrastructure. However, the COVID-19 pandemic meant I had to significantly change my plans. Instead of conducting research in person, I switched to primarily digital research, looking at social media, government documents and policies, live broadcasts of public hearings (when they were available), and public letters that have been published as part of the fight against the C4GT and Chickahominy power plants.

There are significant limitations that accompany the digital ethnographic research for this project that are different than those I would have encountered if I had done my research in person. The first, and most impactful, is that only around half of the residents of Charles City County have access to broadband internet. This means that some of the people who would have been present at public hearings or who I might have encountered while doing my research as planned pre-pandemic are not represented in my final research. The second limitation is that not all the public hearings were available on the internet due to repeated connectivity issues that cut off livestreams or prevented them from being online in the first place. Though this was not an

ideal situation, I was still able to read public comments and letters directed at the Department of Environmental Quality as well as view occasional livestreams. These sources contained a lot of information and perspectives about the perceived impacts, environmental or otherwise, of the planned facilities.

Because I had to switch to digital research, I ended up relying on publicly available official comments, social media posts, and video interviews (among other sources) more than I had planned. I have a few personal individual perspectives represented in my thesis, but it skews towards focusing on community-level and group responses. The individual perspectives that are represented in this paper were mostly drawn from people publicly discussing their perspectives and concerns, primarily in the form of letters, social media posts, and testimonies at few public forums that were recorded and posted online.

I gathered information about the specific plans for and impacts of the C4GT and Chickahominy power plants from the permits for each facility, the Charles City County government, and the Concerned Citizens of Charles City County group, as well as from videos featuring residents of the county talking about their understandings of how they would be impacted. I care more about accurately representing the ways people perceive that they will be affected by these facilities than about the scientific accuracy of those perceptions, as a significant part of my thesis deals with knowledge production and the places and ways different knowledges correspond or conflict with each other. For more general information about the environmental and health impacts of natural gas infrastructure, I drew from data published by the Environmental Protection Agency as well as from non-governmental scientific data and analyses. I took a similar approach when looking into demographic information, gathering specific

statistics from government sources, but privileging the ways people described their community and the experiences of fellow residents of Charles City County over set statistics.

In addition to the digital ethnographic work I did for this project, I worked with analytical frameworks and information drawn from a variety of academic and nonacademic sources. I built my understanding of the specific context of Charles City County from stories and descriptions from the residents, representations of the county's history by the county government, and historical accounts that I compiled from various documents, news stories, and narratives I found throughout the research process. I supplemented this understanding with contextual information about the Richmond Metropolitan Area (which Charles City County is included in) as well as about the whole of Virginia, particularly relating to energy landscape and policy. Using this information, I have been able to explore fossil fuel infrastructure in Charles City County, the social, economic, and ecological relations it is involved in, and its connections to multiple other pieces of infrastructure.

An Overview of the Scholarship

My research and perspective are indebted to earlier work in anthropology, critical theory, science and technology studies, critical geography, environmental studies, and many other disciplines, as well as non-academic forms of knowledge. Though infrastructure has long been a subject of scholarship, it has become increasingly popular in the social sciences over the last few decades. It has been employed as a metaphor for capitalism, to discuss culture, ecology, structural relations, and more recently as an object of ethnographic investigation itself rather than as a conceptual tool or framework. Infrastructures are a productive site for ethnographic research for many reasons, including that they are integral to everyday life. They are central to liberal governance, both as a demonstration of progress and modernity and as a tool to (re)produce

difference between and within populations, subjecting some people to precarity and death (both physical and social) while upholding and privileging the conditions of life for others (Fanon 1961; Mbembe 2003; Gilmore 2007).

Infrastructure is also involved in the production of space, as both a planned physical and social ordering of the world and part of the actual everyday rhythms and patterns of life. Henri Lefebvre argues in his book *The Production of Space (La production de l'espace)* that "space" is rendered into a reproducible physical and affective thing through ongoing and cumulative processes of repetition. Space is also produced in relation to specific temporalities, though neither has an entirely determinant power on the other. Lefebvre argues for a three-part theory of spatial production, consisting of spatial practice, representations of space, and representational space (1991[1974]). Because it is socially produced, space itself does not have intrinsic power over human life for Lefebvre. Instead, it is imbued with power through human relations and societal contradictions, regulating life but not creating it (358). Gastón Gordillo critiques the idea that space has no inherent power and is to some extent inert as being rooted in anthropocentric and Eurocentric understandings of power and landscape that are asserted as but are not universal (Gordillo 2021: 3; de la Cadena 2015; Davis & Todd 2017). Gordillo argues that terrains themselves have inherent power to affect humans, non-human beings, ecologies, weather, et cetera just as those things have power to affect terrains (2). Infrastructure is a technology of spatial management, and produces space (and shapes terrain) through culminating repetitive practices of distribution. On the other hand, space, spatial production, and terrain can also affect and shape infrastructure, and often confound and disrupt its planned forms, locations, and functions.

Working with Lefebvre's spatial theory and Gordillo's critique, I examine the two planned natural gas power plants in Charles City County as aspects of a terrain that have their own power beyond that which is imbued in them through human social relations and structures. I also explore the ways that spatial production is being harnessed to create (as well as deny the existence of) "environmental justice communities", contest infrastructure, and make claims on the state. As Nikhil Anand, Akhil Gupta, and Hannah Appel wrote in the introduction to *The Promise of Infrastructure*, infrastructure is part of "a terrain of power and contestation" (2018: 2) which consists of power lines, septic systems, roads, cameras, schools, and a million other interconnected things that are mobilized in specific ways to differentiate groups of people. In Charles City County, this manifests in two main ways, which I will introduce here and explore more in depth later. The first is that there is a distinct lack of certain infrastructures in Charles City County. Over half of the residents do not have internet access in their homes, there are no grocery stores in the county, and the water infrastructure and many of the roads and septic systems are in need of repair. The second is that Charles City County has been targeted for large-scale infrastructure projects that would and do not fill needs in the county. In addition to the two planned power plants and supporting pipeline, Charles City County is the site of a giant landfill that accepts waste from all over the state, high-capacity electrical transmission lines, and a planned solar farm. Later in this piece, I will discuss how infrastructure is involved in spatial production in Charles City County.

In the book *Urban Horror: Neoliberal Post-Socialism and the Limits of Visibility,* Erin Huang theorizes "neoliberal post-socialism" as a deterritorialized form of market post-socialism which calls for a deeper understanding of the relationship between socialism and the origins of neoliberalism (2020: 2). Though her analysis is based in China and Hong Kong, Huang discusses

neoliberal post-socialism as a global condition of contingency in which the relationships and boundaries between formerly socialist and nonsocialist countries are flexible and mutative. In neoliberal post-socialism, the market is globally expanding and dependent on state intervention, and the definition of the state and its relationship with the economy is transformed (16, 20). Huang also argues that these relational transformations are accompanied by spatial transformations, with technologies of spatial management such as infrastructure, zoning, urbanization, land speculation, and dispossession proliferating to extend and manipulate neoliberal flexibility (21). I employ Huang's theorization in this paper to discuss this global condition of contingency and flexibility at a local scale in Charles City County, where the county government's economic development plans have presented the county as an ambiguous and flexible space, ripe for development.

The mode of production which neoliberal post-socialism is a condition of is racial capitalism, a term coined by Cedric Robinson to describe an overarching framework and analysis about the integral role of race in capital accumulation that has been theorized both prior to and since Robinson articulated it in *Black Marxism* (1983). In racial capitalism (which is all capitalism), capital has to be perpetually accumulated at a constantly increasing rate. The framework describes the co-constitutive relationship between colonialism, race and racialized enslavement, expropriation of land and resources, and capital accumulation. It highlights the fact that capital accumulation is possible only through producing and exploiting unequal social differentiation between and within groups of people, and that oppression and exploitation of Black people and other racialized subjects is especially central to capitalism (Robinson 1983; Lowe 1996; Gilmore 2007). Since it is the dominant mode of production, racial capitalism is

deeply connected to the production of space, geography, and practices of domination (Gilmore 2010; McKittrick 2011; Pulido 2017).

In the global condition of neoliberal post-socialism and racial capitalism, infrastructure is a differentiating technology of spatial management and part of a planetary assemblage. As such it needs to be examined and thought about across multiple radically different scales, places, and forms. One way to do this is by looking at specific nodes of infrastructures, which is the approach I take in this essay. Because these two power plants are part of a broad assemblage of infrastructure, they operate through contingent connections with other infrastructures, "natural" resources, social relations, ecologies, and terrain, among a multitude of other things. Though these connections are an integral component of how infrastructures function, they are not predetermined, static, or entirely planned. Instead, they are cobbled together, transformed, and abandoned in specific times and spaces (Lowenhaupt-Tsing 2005, 2012; Bennett 2005).

Assemblage theory lends itself to exploring and analyzing infrastructure for a variety of reasons. First, an assemblage is a contingent grouping, with historical and circumstantial origins. Second, assemblages are not governed or planned by a central power, meaning no one piece in an assemblage can fully control the activities of the assemblage or the consequences associated with it. Third, though no single actant can determine the activities of an assemblage, assemblages have an uneven distribution of power; some parts have more affective power than others. Fourth, assemblages are extensive and in a state of constant movement. As extensive as they are, there are forces and actants that are simultaneously part of assemblages and exceeding, confounding, and working against them. Finally, assemblages are made up of a large variety of actants including terrain, humans and nonhumans, animals, plants, rocks, dirt, culture, governing structures, imaginaries, and a basically unending list of other things (Bennett 2005: 445). In her

2005 essay “The Agency of Assemblages”, Jane Bennett applies this concept to electrical grids as part of a discussion of agency, responsibility, and harm. In this paper, I apply this framework to infrastructure, with a focus on fossil fuel infrastructure. Natural gas infrastructure is a good example of an assemblage. It is a material and relational grouping of connected parts that are closely related enough to function as an (open and transforming) system. Though it is connected and endurant, there are forces and actants within the assemblage that disturb it, exceed it, and work against it. Thinking about infrastructure in this way allows me to examine the haphazard ways that it is built, operated, and connected to other infrastructures. I will explore this later in my paper, focusing on C4GT, Chickahominy Power Station, and the (now canceled) Header Improvement Project.

Because infrastructures are made through contingencies and transformative relationships, they can be described as non-scalable projects, a conceptual approach articulated by Anna Lowenhaupt-Tsing in her 2012 essay “On Nonscalability”. Tsing defines non-scalability as a trait with a negative relationship to scalability. Scalability is a design ideal and a way to describe the quality of non-transformative expansion; non-scalability is a feature of anything that is not scalable (2012: 508-9). Describing infrastructure as non-scalable draws attention to the cumulative processes of negotiation, construction, adaptation, crisis, decay, abandonment, and repurposing involved in its making (Anand, Gupta, & Appel 2018), the contingent relationships it is part of, and the accumulating ruins it is both made in and produces (Gordillo 2014; Stoler 2016; Sharpe 2016). This has been the case with the C4GT and Chickahominy power plants; both are still in development and will likely change, and potentially be abandoned, before their construction is complete. To explore the specific infrastructural projects in the county as

entry-points into a plurality of non-scalable connections, I also employ Gastón Gordillo's theory of the metropolis (Gordillo 2018: 66-94).

I will focus specifically on fossil fuel infrastructure in Charles City County with small discussions of the other infrastructural projects that it is connected to, supports, and relies on, as well as its place in a global assemblage. Like all infrastructure, fossil fuel infrastructure supports certain ways of human life, including industrial production, capitalism, global connection, rapid transportation, and electricity, among others (Hetherington 2018). In his book *Carbon Democracy* (2011), Timothy Mitchell argues that the dominant organizational modes of economics and politics in the twentieth century were enabled by and reliant on the new technologies of fossil fuel extraction and delivery and the premise that the energy they produced was unlimited. The idea that carbon energy (especially oil) was an inexhaustible resource was crucial for the spread of mass industrialism and became part of the foundation for long-term (seemingly unending) growth that was not possible before fossil fuels. However, the oil shocks of the 1970s, the shrinking quantity of known untapped fossil fuel sources, and the increasingly evident and uneven effects of climate change have shown that fossil fuels and the energy they provide are not unlimited (Mitchell 2011). Even if oil, coal, and natural gas were unlimited, it has become increasingly evident that their use and the world which their energy sustains are ecologically destructive and unsustainable. Acknowledgement of the need to end fossil fuel use has made its way into official state policies and the public statements of company officials, though the accompanying commitments to slowly become zero or "net zero" build in plenty of flexibility to find or create workarounds. I will explore this more in depth later.

As I touched on in my discussion of spatial production, infrastructure facilitates the differential allocation of things like water and food that are necessary for life. The distributive

patterns and practices of infrastructures all over the world are deeply involved in the social production of difference. As Anand, Gupta, and Appel discussed in the introduction to *The Promise of Infrastructure*, they are a biopolitical promise and tool; social and political power is exerted through them to foster life for some while excluding others (2018). However, they are also a necropolitical (Mbembe 2003) technology; particular infrastructures (for example, fossil fuel infrastructure) produce harm and vulnerability because of the negative impacts they have (ecological and biological disruption, pollution, etc) on the people who live close to them. Necropolitics is in part a critique of and response to Foucault's conceptualization of biopolitics; Achille Mbembe argues that biopolitics and biopower are not sufficient in understanding the ways that social and political power are used to regulate life by exposing and subjecting certain groups of people to death, enslavement, and violence (2003). Social power is exercised through infrastructure along the contours of racial capitalism; the people (often Black people and other racialized non-white people) who are devalued in order for others to accumulate capital are also most often the people who are left out of infrastructural distribution and subjected to harm (and death) through exposure to both routine exposure and "unanticipated" disaster (Gilmore 2007; Bond 2013; Taylor 2014). Infrastructure functions with and through racialized colonial violence and practices of domination to (re)produce social, environmental, biological, and geographical differentiation as a tool of legal and extralegal bio/necropolitical regimes (Gilmore 2007; McKittrick 2011, 2014; Hall 2017).

Finally, my research and perspective are informed by environmental justice, which is first and foremost a social movement in response to differentiated environmental degradation, and in particular against environmental racism. It is important to my research because it is invoked and mobilized in multiple ways in the fight against (though it is employed in support as well) the

C4GT and Chickahominy power plants in Charles City County. I explore the invocation of environmental justice in the creation (and denial) of "environmental justice communities", as well as what constitutes them, later in this paper. I also discuss infrastructure as an assemblage in the current global conditions of racial capitalism and neoliberal post-socialism that facilitates the distribution of resources as well as pollution and other impacts. I discuss these qualities of infrastructure in relation to environmental racism and justice. Finally, I explore the futures invoked and described by people in Charles City County, and what infrastructure signifies about and in those futures.

A Brief Introduction to Charles City County

Charles City County is a rural, sparsely populated county located in eastern central Virginia, around 40 miles from Richmond. The James River borders the county in the south and the Chickahominy River borders it in the east. Charles City County is part of the Richmond Metropolitan Statistical Area, which includes Richmond and the 17 surrounding counties. Though several of the counties and independent cities around Charles City County are sites of large scale industrial and infrastructural projects (for example, Hopewell, Chesterfield County, Prince George County, and Surry County, among others), the county has largely avoided this kind of development, with some exceptions. These exceptions include a large landfill, high capacity electricity transmission lines, a Virginia Natural Gas power plant, and now the two proposed natural gas power plants (which would require other associated infrastructure such as pipelines). The lack of development has been cited as a reason for the county's economic issues and as an opportunity to attract larger industrial and infrastructural projects to the county (Charles City County Board of Supervisors, 2018). All of these projects are extremely controversial for a variety of reasons, including potential economic, environmental, and health

impacts, as well as the notable lack of infrastructure that is aimed at serving the residents of the county.

All of the projects mentioned above have received criticism on the grounds of environmental racism and injustice. Charles City County is a minority-majority county, meaning that the majority of residents of the county belong to racial and/or ethnic minorities (a category which is defined in relation to the population of the entire United States). Of the approximately 7000 residents, 45% are Black and 7% are indigenous people belonging to the Chickahominy tribe (US Census Bureau, 2019), who have lived in the area since before British colonization began. Additionally, the county has a low average household income and a high poverty rate, both in comparison to the surrounding counties and Virginia's state averages (US Census Bureau, 2019). Finally, according to the Charles City County Health Coalition, approximately one in five people in the county are food insecure (2017: 20). These statistics all echo testimonies of residents of Charles City County about their reasons for opposing the power plants.

The Charles City County government plans to stimulate economic growth in the county by attracting commercial and industrial activity to Charles City County, particularly along the Roxbury Road (Route 106) Industrial Corridor. According to a development plan released by the Charles City County Board of Supervisors in October 2018 (before knowledge of the two power plants was widespread), the Economic Development Authority aims to increase economic activity within the county by shifting zoning practices and investing in infrastructure (particularly water, sewage, and internet infrastructure) to support residential and commercial growth. Additionally, the Economic Development Authority plans for development to serve the needs of residents, primarily in the form of grocery and retail stores, expanded internet access, and updated water and sewage systems. The development plan focuses on expanding the

agriculture, transportation, tourism, manufacturing, and industrial sectors. However, the plan also highlights the need to preserve the character of the county in order to continue to attract tourism and residential growth (CCCBS, 2018).

The Charles City County website paints the county as a "reflection of America's past" and a "land lost in time" ("About the County", n.d.), asserting that it has remained virtually untouched by new development and population growth. Though the website does not explicitly discuss slavery and settler-colonialism as part of Charles City County's history, it invokes both in highlighting the historic and archaeological resources in the county. According to the website, the county offers important sources of information about "early settlements of Native Americans, the entry of the Europeans and African-Americans into the New World, and the colonial and plantation periods" ("About the County", n.d.).

Though the website acknowledges that indigenous people lived in the region prior to colonization, it establishes the earliest European settlement in present-day Charles City County in 1613 as the beginning of the region's history. In the century following this initial seizure of land for estates, new land-use regimes developed in the region (primarily plantation agriculture), the legacies of which are very visible in Charles City County. Eleven of the plantations established along the James River in Charles City County during the 18th century are still standing today, and several have not changed hands since the 18th or 19th centuries. Of those eleven plantations, three are private residences (at least two of those three are still used for agriculture) and the other eight are open to the public. These eight plantations account for the bulk of the tourism industry in Charles City County. The county website advertises the plantations as reminders to both residents and visitors of the county's "long history" ("About the County", n.d.), while obscuring the extreme inequalities and violences of that history. Many of

the residents of Charles City County are descendants of Black people who were enslaved in the county to work on plantations and of Indigenous people who were forcibly pushed off their land by European settlers, as well as of the white people who perpetrated the violences of enslavement and land seizure. The county website does not explicitly note this particular "reflection" of history, though it is inextricable from the historical narrative they do present as well as from the social and economic relations of present day Charles City County.

The historical, social, and environmental context of Charles City County is vital for understanding the contention around the proposals for the C4GT and Chickahominy natural gas power stations. Though there is significant opposition to them on the part of many residents of the county, the county government and some of the other residents have supported the proposed projects. According to the permits for both power stations, the county will actually significantly subsidize the facilities through tax breaks and grants (Economic Development Authority of Charles City County 2018, 2019). Support for or opposition to the two projects (and all of the proposals for projects in the county) among the residents of the county involves weighing multiple complex conditions and potentialities, including potential economic or personal benefits as well as environmental impacts and health risks. In June 2019, some of the residents of Charles City County joined together to form the Concerned Citizens of Charles City County, a group initially aimed at opposing the two power plants. While opposition to the facilities remains a central aspect of the groups mission, its purpose has expanded to include advocacy for other issues in the county, including food security, internet access, pandemic support, and increasingly intense weather the residents of Charles City County face (Concerned Citizens of Charles City County website 2020). A lot of the contention around these projects stems from the fact that the electricity they will produce is not going to meet a need in the county; instead, it will largely be

routed to Northern Virginia and to the Hampton Roads region to support data centers and military infrastructure. They are being built as part of an effort to ensure the future security of the electrical grid, which I will explore in more depth later in this paper.

Natural Gas and Infrastructural Assemblages

Energy generated using natural gas emits smaller amounts of air pollution (especially carbon dioxide, nitrogen oxides, and particulates) than energy generated using coal or petroleum does. Citing these reduced emissions, the US Energy Information Administration describes natural gas as a low(er)-impact, relatively "clean" fossil fuel (US EIA 2020). However the Union of Concerned Scientists, a non-profit US based science advocacy organization, questions whether natural gas is truly less harmful than oil or coal because of the long term methane emissions associated with extracting, transporting, and processing natural gas. Emissions associated with natural gas are not limited to those released during the combustion process, when the gas is used to generate electricity; around 1-9% of total natural gas emissions come from "fugitive" methane gas leaks at drilling sites and during transportation in pipelines. Methane emissions are also significantly more detrimental than CO2 emissions because methane traps more heat in the atmosphere (Union of Concerned Scientists June 19 2014). Though natural gas use overall releases fewer greenhouse gas and particulate emissions than oil or coal, there are still significant health impacts associated with natural gas (Landrigan et al 2020). In 2018, natural gas was the source of 52% of the energy generated in Virginia (Department of Mines, Minerals and Energy 2018: 54).

There are specific environmental and social concerns that accompany the use of natural gas and the infrastructure used to transport and process it. Environmental degradation, air pollution, and water pollution are some of the principal concerns related to natural gas, as they

are associated with persistent health and environmental impacts and are difficult to combat because they are inherent byproducts of electricity production (Landrigan et al 2020). As I discussed earlier in this paper, infrastructure is one of the technologies the state uses to exercise biopolitical and necropolitical power along the lines of racial capitalism (Anand, Gupta, & Appel 2018). An example of the necropolitics of infrastructure can be seen in the uneven distribution of natural gas infrastructure; the burden of its effects is placed most often on poor people and people of color, especially Black and indigenous people, as is the case in Charles City County.

I approach natural gas infrastructure as an assemblage in this paper for three reasons. First, doing so highlights the uneven distribution of power across infrastructural networks, which I discussed above. Second, it allows me to discuss the material, affective, and relational qualities of natural gas infrastructure in Charles City County, and to examine the ways it has come into being through contingencies, corporate opportunism, and state planning (Bennett 2005). Second, approaching infrastructure in this way allows me to situate C4GT and Chickahominy Power Station within a broader picture of infrastructure. Though I focus on the two power plants, approaching them as part of an extensive assemblage highlights their connections to other infrastructure, both direct and indirect.

The example of the Header Improvement Project offers an excellent case study of the ways different infrastructures are both materially and relationally connected. The header Improvement Project (HIP) was a proposed pipeline extension and a series of compressor stations that was supposed to supply natural gas to the two power plants. In December 2020 Virginia Natural Gas (the company that proposed the HIP) withdrew the application for the project, citing an inability to meet conditions set by the State Corporation Commission. These conditions highlight how contingent infrastructural projects are on one another even prior to their

construction; the SCC had directed Virginia Natural Gas to provide evidence that the two power plants would have a use for the gas being transported through the pipeline (Vogelsong 2020). They were not able to provide evidence that the gas the pipeline was meant to supply the facilities with would be necessary at the planned start date because both C4GT and the Chickahominy Power Station have experienced significant delays in construction (due to the pandemic as well as the efforts of people opposing the facilities), and they may be canceled before they are complete (Vogelsong 2021). Aside from the functional connections (including promised ones), the HIP also has intangible connections with the two power plants. The picture below is a graphic made by the Concerned Citizens of Charles City Countygroup as part of the virtual push against the Header Improvement Project in May 2020. It highlights some of the connections the HIP and the two power plants have, including clear environmental racism and negative health and environmental impacts which compound on each other.

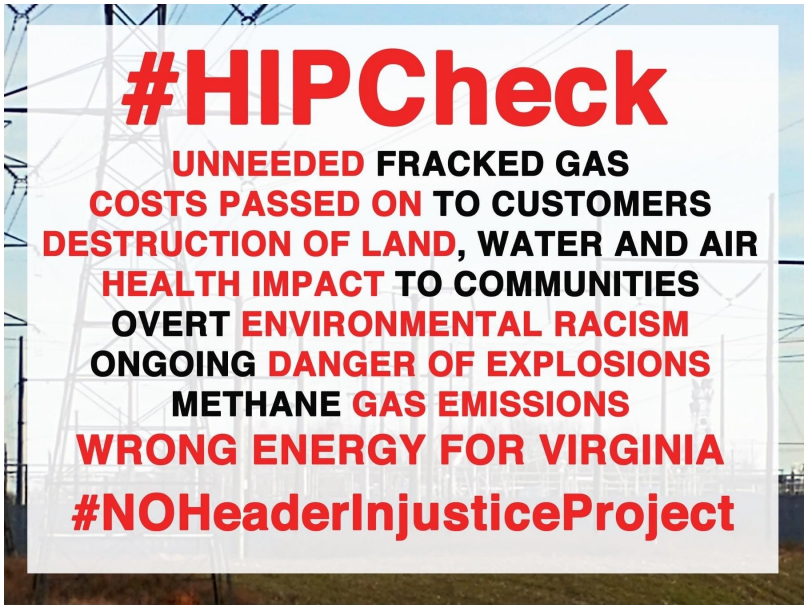

Image Description: Graphic expressing opposition to the Header Improvement Project. Text [all caps]: #HIPCheck; Unneeded fracked gas; Costs passed on to customers; Destruction of land, water and air; Health impact to communities; Overt environmental racism; Ongoing danger of explosions; Methane gas emissions; Wrong energy for Virginia; #NOHeaderInjusticeProject

I. Space, Terrain, and Environmental Justice Communities

On July 16th, 2020, the Chesapeake Bay Foundation released a video on YouTube titled "Environmental Justice in Rural Virginia". In this video, a few residents of Charles City County discuss the C4GT and Chickahominy power plants and the (now canceled) Header Improvement Project pipeline that would have delivered natural gas to the facilities. Though the video is only four and a half minutes long, the perspectives shown within it are representative of experiences and perspectives that came up repeatedly throughout my research. Additionally, it presents an opportunity to discuss the production of space in Charles City County. It features several people discussing environmental justice, calling for community involvement in the decision making process for the proposed pieces of infrastructure, and invoking specific histories as well as hopes and ideas about the future to contest the facilities.

This video is a collaboration between the Chesapeake Bay Foundation, which is an environmental group focused on preserving the environment of the Chesapeake Bay region at large, and the Concerned Citizens of Charles City County group. The video begins with an audio clip of Reverend F. Wayne Henley, a Black man who lives in Charles City County and is the pastor of Cedar Grove Baptist Church. Speaking at a Virginia State Water Control Board meeting on June 29th, 2020, Reverend Henley called on the board to "hear the disenfranchised today" (Chesapeake Bay Foundation, 0:07) and "hear the voices of our ancestors screaming from their graves" (0:12), urging them to directly involve residents of Charles City County in the decisions about the proposed fossil fuel infrastructure. The ancestors that Reverend Henley refers to here are the people who were enslaved to work on plantations in Charles City County, their descendents, and indigenous people. By invoking "our ancestors", Reverend Henley is making a clear assertion about who will be impacted by the two power plants; not just residents of Charles

City County as a whole, but specifically the Black and Indigenous people who live in the county. He is emphasizing a deep reciprocal relationship between the environment and the people who live in Charles City County; affecting the land is the same thing as affecting the residents of the county, both dead and alive. This hints at an understanding of the environment that pushes against the dominant conceptualizations of land as apolitical, inert, and detached from human relationships (Gordillo 2021). Referencing the graves of ancestors here is significant for another reason: many of those ancestors were buried in graves that are no longer marked (or were initially unmarked). The two power plants would not just affect the current residents, ecologies, and spatial production of Charles City County, they could also potentially disturb or build over gravesites.

Following Reverend Henley's call to action, Benita Cotman Lewis, La'Veesha Allen Rollins, and Cynthia Robinson (all members of the Concerned Citizens of Charles City County group) discuss their concerns about the power plants. As part of her statement, La'Veesha Rollins quotes Charles City County's slogan ("Four Centuries, Three Cultures, Two Rivers in One County"), saying that the county "unlocks so much history" that is threatened by the construction and operation of the two power plants. This was interesting in part because the slogan Rollins quotes is an extremely reductive representation of the history she points to. She implicitly turns the assertion made by the slogan (of a united, equal population) on its head, while at the same time mobilizing the history of the county to work against the power plants.

Charles City County adopted this slogan in 2007 as part of the regional commemoration of Jamestown's 400th anniversary. It was chosen to represent a summary history of the county and, more importantly, attract tourism by emphasizing the relationship and parallels between Charles City County and Jamestown. It references the four centuries of history since the

beginning of European colonization, during which the "three cultures" (Black people, indigenous people, and white people) have "moved… from confrontation to community" ("History | Charles City County, VA" n.d.). It also references the James and Chickahominy Rivers, specifically pointing to their importance in the context of European exploration and colonization. Finally, by referencing "One County", the slogan asserts that the population of Charles City County is a cohesive community of Black people, indigenous people, and white people. It presents the county as a success story of American democracy, a place where cultural mixing and cooperation have overcome historical inequalities ("History | Charles City County, VA"). The reference to the slogan in the video invokes the county's history in order to fight the power plants, but also hints at a contradiction between the history as it is presented and the experiences of people who lived or live in Charles City County.

Towards the end of the video Taylor Lilley, a Chesapeake Bay Foundation Environmental Justice Staff Attorney, discusses the case for blocking the power plants from being constructed on the basis of environmental justice (Chesapeake Bay Foundation, 2:50). Her discussion (and the language of others throughout the video) points to an idea that was echoed throughout my research, the concept of an "environmental justice community". This idea appeared repeatedly in many different sources throughout my research, especially in state policy (for example, the Virginia Energy Plan) and in residents' descriptions of Charles City County in videos and on social media. Though the term was used in very different ways depending on who was using it and the context of its use, there were certain aspects of the ways it was used that overlapped. From these overlaps, I identified what appear to be some defining contingencies and conditions of environmental justice communities. First, invoking environmental justice to form a community involves specific contingent ways of describing and ordering space and populations

that differ based on intent and purpose. Second, perceived vulnerability is central to whether a place is considered an environmental justice community, no matter who was designating a place as such. Third, "environmental justice community" is not a general description; they come into being in relation to a perceived threat. These threats can be long term (such as air and water pollution) and short term (pipeline explosions, natural gas leaks), but they have to come from an identifiable source, or potentially a couple of sources that have the same effects (as is the case with the C4GT and Chickahominy power plants).

Environmental justice communities are constituted from historical, social, and material contingencies that have exposed certain groups of people and certain places to harm and death (Taylor 2014, Mbembe 2003). When residents of Charles City County described themselves as an environmental justice community, they were calling on specific conditions and histories in the county to make assertions about the risks the proposed facilities pose to them and their right to avoid those risks (Chesapeake Bay Foundation, 2020). When the state invoked environmental justice communities, the term referred to a standardized status that could be applied to places in relation to specific proposed projects (Southern Environmental Law Center (SELC), Email to the State Water Control Board, February 14, 2020). Though the Department of Environmental Quality claims that their commitment to environmental justice is more than just checking boxes ("Environmental Justice | Virginia DEQ" n.d.), this assertion is not supported by their actions both in Charles City County and across the state. In contrast to the way Charles City County residents employed the term, state-identified environmental justice communities exist only where groups of people that the state defines as vulnerable live in close enough proximity to things that have recognized negative impacts on the environment that are linked to health concerns (Taylor 2014). Both uses rest on contingencies, but people in Charles City County used those

contingencies to describe their perceptions of their position and invoke historical conditions that have produced vulnerability while people working within the state used them to create an abstracted standard that was not contextually specific which was then broadly applied to a variety of situations. I will talk about this abstracted standard in depth in the next section.

Spatial production in Charles City County involves more than just the built environment, infrastructure, and history of the county; it also involves more-than-human and other-than-human entities and processes. One of the most present more/other-than-human entities in Charles City County is the terrain; it has shaped (in a non-totalizing way) the social, historical, economic, and ecological relationships in the county. Gaston Gordillo defines terrain as "the forms, textures, flows, and atmospheres of space on Earth" (2021: 2), something that holds power in and of itself. The ways that terrain, ecologies, space, humans, and non-humans relate to each other are complex and constantly transforming, and not easily reduced to words. All of these entities act on and with each other in repetitive and sometimes unexpected and unpredictable ways. Terrain features prominently in the creation of environmental justice communities, though it is often relegated to the background and not always considered as a powerful entity in its own right.

In Charles City County, the most prominent aspects of the terrain are the James and Chickahominy Rivers and the "pristine" forests (as described on the Charles City County website). Both of these aspects of the terrain have acted on and been invoked in the debate surrounding the power plants in a multitude of ways. As a result of climate change, the rivers have flooded with increasing intensity and frequency in recent years. This has interfered with the construction of the two plants and added fuel to the opposition; the increasingly unpredictable nature of these floods could potentially act on and with the facilities in catastrophic ways. The impact (and the presence in the first place) of flooding is influenced by the terrain as well as by

human actions, and the floods that have impacted Charles City County in recent years have been shaped by the history of plantation agriculture and the social relations in the county.

As I discussed earlier, the creation of Charles City County as an environmental justice community relies on an artificial limit to the environmental impact of these two plants being placed around the county. Additionally, when the county is described as such by the state, it is only in reference to the two power plants. However, no such boundary actually exists; the effects of the two facilities will reach beyond the official impact zone, and Charles City County has a long history of being impacted by power stations and other infrastructural projects in the surrounding counties. The existence of the environmental justice community of Charles City County relies on and is incorporated into the ongoing, constant processes of producing and reproducing space in the county.

While the people and ecologies that constitute Charles City County and the threats posed to them by these proposed new pieces of infrastructure do exist, they do not have a precise, easily defined, or predictable form. Because of this, the description of Charles City County as an environmental justice community by people who live there is not a statement of objective fact. Instead, it is an analysis of the social, ecological, and historical conditions of the county and the people living there and an argument about the residents' right to meaningfully participate in decisions being made about their environment. It is invoked during specific moments in opposition to perceived threats to the wellbeing of the people and ecologies of the county. Additionally, it is invoked to make claims on and against infrastructure and the state at multiple scales, particularly the county government, the Virginia legislature, and the agencies of the Department of Environmental Quality.

II. Racial Capitalism, Infrastructure, and Environmental Knowledge

The Virginia Energy Plan requires the Department of Environmental Quality (DEQ) to conduct an environmental justice analysis for all proposals for new and expanded energy sources, infrastructures, and facilities as part of the process of receiving an initial permit. This requirement is part of Virginia's supposed commitment to environmental justice and is intended to protect vulnerable populations from being disproportionately burdened with environmental degradation, pollutants, and the health risks associated with them. However, the environmental justice reports produced by the DEQ are malleable to fit the needs of different projects and regularly avoid classifying communities and places as vulnerable. This is possible in part because the DEQ is not required to cooperate with residents of potentially impacted communities to produce the reports, and in part because the DEQ is doing exactly what it is supposed to do as a part of a racial capitalist state. In Charles City County, the responses to the DEQ's analyses reveal different ways of knowing and describing people, the environment, and perceived impact that are always present but are brought into focus in this moment of heightened contrast.

In the Department of Environmental Quality's analyses, the decision about whether or not the residents of a place count as vulnerable enough to be protected rests on specific understandings of group vulnerability and environmental impact. The DEQ has implemented set units of measuring impact and vulnerability that it then uses as the standard against which a specific place, project, or group of people is analyzed and described. These methods of measuring vulnerability are reductive and detached from the ways risk and vulnerability is reflected and experienced in the communities they attempt to analyze and describe. The decision also rests on static, discrete views of the environment and harm. In order to quantify vulnerability and potential impacts, the facilities are evaluated on an individual basis without

considering the cumulative effects of years of operation, the specific histories of a place, and other factors that might affect the impact of a single facility. Though the DEQ's mission is to "protect and enhance Virginia's environment, and promote the health and well-being of all citizens in the Commonwealth" (Virginia DEQ, n.d.), the broad application of universal standards makes it so that the decisions made by the DEQ regularly undermine the commitment to environmental justice.

Instead of working with residents to determine how they would be impacted by a project, the DEQ's analyses are primarily based on statistics, geographic proximity, and environmental health standards that are set either by the DEQ or by the US Environmental Protection Agency (Virginia DEQ n.d.). This results in descriptions of vulnerability and impact that are open to interpretation and can be restricted, producing and facilitating environmental racism even as the DEQ purports to work towards environmental justice. As Laura Pulido discussed in her article "Geographies of Race and Ethnicity II", the modern state is inextricably tied with racial capitalism. Because of this, it differentiates between and devalues certain groups of people, especially Black people, as I discussed earlier in this piece (Robinson 1983; Gilmore 2007; Pulido 2017). Pulido extends the theory of racial capitalism to environmental racism and pollution, arguing that attempts to work with the state towards environmental justice have largely been unsuccessful because the state is invested in maintaining racial capitalism (2017: 526-27).

The abstracted standard that the DEQ uses is problematic for a number of reasons. One issue with setting hard and fast parameters for identifying places that have environmental justice concerns is that doing so artificially limits the geographical boundaries of the environmental impacts of a project. Additionally, it limits the sources of potential harm, looking only at the effects of a single project over a short period of time on background ecological and health

conditions (Bond 2013). But the effects of any one project are produced through contingencies with many unpredictable factors and are not limited to a set distance from the source; there is no magical barrier that stops air, water, and other types of pollutants from going beyond the assumed impacted area. There is also no force that prevents pollutants from multiple different sources from interacting with each other, cumulatively producing effects that are hard to separate from each other because they are tied together.

The flexibility of the DEQ reports allows companies and the state to work around the environmental justice "requirement" even when the people who would be impacted by proposed projects are clearly part of a vulnerable community according to state definition. This was the case in Union Hill, an unincorporated community in Buckingham County that was founded by Black people after the American Civil War. Following Dominion Energy's request for a permit to build a natural gas compressor station in Union Hill for the proposed (now canceled) Atlantic Coast Pipeline, the DEQ used EJSCREEN to conduct an analysis of the residents and environment around its proposed location (SELC, Email to the State Water Control Board, February 14, 2020). EJSCREEN is a screening tool designed by the United States Environmental Protection Agency to provide the public with a rough estimation of who might be affected by environmental degradation. It is not intended to be used by government agencies to label or define "environmental justice communities" or to decide whether a specific place does or does not have environmental justice concerns ("What Is EJSCREEN?", US EPA, 2014), which is exactly how the DEQ used it. The report asserted that Union Hill did not qualify as an "environmental justice community", which allowed the required permit to be issued to Dominion. The report was immediately criticized for failing to accurately assess the potential environmental and health impacts of the compressor station on the residents of Union Hill and

failing to recognize the existence of Union Hill as a predominantly Black community. After a long fight between residents of Union Hill and Dominion Energy, the permit was revoked by the United States Court of Appeals for the Fourth Circuit in its January 2020 decision on *Friends of Buckingham v. State Air Pollution Control Board* (SELC 2020). Dominion canceled the entire Atlantic Coast Pipeline in July 2020.

The Southern Environmental Law Center, along with several groups in and around Charles City County, invoked the *Friends of Buckingham* decision to contest the Chickahominy processing plant's permit in a letter that was sent to the Department of Environmental Quality and State Water Control Board on February 14th, 2020. This letter detailed several requests directed at the DEQ regarding the proposed Chickahominy Power Station. Their principle request was for the station's special exemption permit for draft groundwater withdrawal to be revoked on the grounds that the environmental justice analysis generated for the facility was flawed and that allowing the plant to draw from the already stressed Potomac Aquifer would set a bad precedent for groundwater management in Virginia (SELC 2020: 1-2). The authors requested a more reliable investigation into the communities living in close proximity to the facility and a more thorough analysis of the potential for disproportionate impact (2). The letter also asserted that the residents of Charles City County should be meaningfully involved in the permitting process for the Chickahominy Power Station (7-8).

According to the letter, the DEQ used EJSCREEN to generate its analysis of the potential health and environmental impacts of the Chickahominy Power Station. The resulting report determined that the Charles City County residents who live in the immediate vicinity of the plant do not belong to a vulnerable population at high enough percentages to warrant marking the area as an environmental justice community by state standards (SELC 2020: 3). The DEQ also

reported that the Chickahominy plant would not have a significant impact on the environmental health of Charles City County or increase health risks for those living close to the proposed location. County residents questioned the methods and accuracy of the DEQ analysis as soon as it was made available to the public, which was after the initial permit had been granted. The letter asserts that the DEQ's analysis did not adequately assess the communities who would be impacted by the construction and operation of the Chickahominy Power Station and underestimated the disproportionate burden it would place on Charles City County as a whole (3-4). The letter cites the Fourth Circuit Court's decision in *Friends of Buckingham* as evidence that the DEQ cannot be confident in any analysis generated using EJSCREEN. The letter also notes that the state analysis of Union Hill was similar to the state analysis of Charles City County, with both reports showing minority populations of around 40% in a small impacted area. In the *Friends of Buckingham* case, the state conceded that this was a misrepresentation of Union Hill's population, which is actually around 85% Black people. The letter argues that the Fourth Circuit Court's decision in *Friends of Buckingham v. State Air Pollution Control Board* added weight to the assertion that the DEQ's analysis of Charles City County is flawed (4-5).

As indicated in the SELC letter, the DEQ's ways of describing, measuring, and knowing the environment and people of Charles City County, as well as its ways of calculating impact and vulnerability, are at odds with those used by the people who would be most impacted by the construction and operation of the two power plants. This was also exemplified in a tweet from the Concerned Citizens of Charles City County twitter account: "If the HIP is built, it definitely will harm our air and water. @VAStateCorpComm please don't let us be sacrificed for this risky and unnecessary project! #HIPCheck" (@concerned_city, May 13, 2020). Referencing a Virginia State Corporation Commission hearing on the Header Improvement Project (HIP), which has

since been canceled, this tweet highlights the contradiction between the way the state is calculating harm and risk and the ways people who would be directly impacted are perceiving the impact it would have. These perceived impacts included threats to the environment, people, and ways of life in Charles City County, as well as potential negative economic impacts. In another tweet regarding the same SCC hearing, Concerned Citizens of Charles City County said "This HIP risk will result in higher utility rates for everyone and the lasting catastrophe to the land, water, air, and way of life for Charles City. @GovernorVA and @VaHouse Don't sacrifice CCC! #HIPCheck" (@concerned_city, May 13, 2020). This tweet was made in response to the SCC describing the impacts of the Header Improvement Project exclusively in economic terms; the SCC had directed Virginia Natural Gas to resubmit its application because of concerns over "stranded capacity costs" that could get pushed onto customers. The tweet emphasizes the economic consequences of this piece of infrastructure, but also highlights the other impacts. In describing it as a "lasting catastrophe", the tweet also makes a statement about the futures associated with this infrastructure, which I will explore further later in this paper.

The SELC letter and these two tweets (which are representative of many other similar ones) are part of a broader debate that has implications for the future of infrastructure, especially fossil fuel infrastructure, in Charles City County and beyond. Specifically, they exhibit contention between different ways of determining and representing the effects of infrastructure on the environment and on people, as well as arguments about how group vulnerability is determined. The two tweets highlight the contradictions between the state's assessments and the concerns of the people who would be most impacted by the new fossil fuel infrastructure. The letter explicitly outlines claims on the state for environmental and infrastructural justice, pointing out where the DEQ went wrong (using EJSCREEN) and demanding community participation in

the decisions about the Chickahominy and C4GT power plants. Though it never explicitly names it, it also raises the question of whether environmental justice is possible to achieve by working in cooperation with or through the state. If the state were to fulfill the demands the letter communicates (meaningful community involvement and decision making power in particular), it would represent a complete departure from its past and current actions.

The standardized way that the Virginia Department of Environmental Quality has incorporated environmental justice into its permitting process for energy infrastructure relies on simplifying and delineating land, people, and environmental impacts in ways that do not reflect the observable patterns of life, space, and pollution (Taylor 2014; Pulido 2017). The state relies on these standards to make supposedly objective decisions about where potentially harmful facilities are allowed to be built without engaging the people who live in the area beyond demographic assessment (SELC, Email to State Water Control Board, February 14, 2020). These assessments also assume that the measurable known impacts of such projects are consistent between projects, ecologies, and groups of people, and that they will remain predictable throughout the planned lifespan of the project (Anand, Gupta, & Appel 2018; Hetherington 2018; Davies 2019).

The differences in ways of knowing and presenting the environment, people, and risk are important because they highlight the differences in their intended use. The people who would be most impacted by these projects are primarily producing and employing this knowledge to fight against them and assert their existence as a vulnerable community. On the other hand, the DEQ and various other state institutions are using and producing this knowledge as part of an attempt to develop new ways to administer and calculate environmental harm and vulnerability. Virginia's environmental justice commitment (and its incorporation into the requirements for all

energy infrastructure) is not meant to ensure environmental justice, or end environmental injustice. Instead, it obfuscates the integral role that the state plays in sanctioning and producing environmental racism and other environmental injustices, a role that is paralleled by and works in tandem with the production of unequal social differentiation in racial capitalism (Taylor 2014; Pulido 2017). As I discussed throughout this section, the state's use of environmental justice is built on specific methods of counting people, determining effects of infrastructure, and describing and representing environments, land, and ecologies. Because of these methods, legalized environmental justice can be manipulated so that the state can uphold its commitment to environmental justice while continuing to produce environmental racism.

III. Natural Gas, Infrastructure, and Futurities

The contention around the C4GT and Chickahominy power plants is deeply connected to the different ways people and institutions envision the future. These ideas about the future are inherently presented in the opinions, arguments, documents, and plans related to the power plants. These include legislation and government plans, personal aspirations, ideas about what the future of Charles City County (and the world in general) might look like, and corporate projections of growth, as well as numerous others. They also include questions about economic development, climate change, justice, and representation. Infrastructures feature heavily in these visions of and plans for the future, both because they were expressed as part of the debate about the two power plants and because infrastructure holds such a prominent role in everyday life. Because of this prominent role, infrastructures signify certain things about the future, both in personal aspirations and in institutional plans (Anand, Gupta, & Appel 2018). The things that infrastructures signify are tied to their intended purposes and whether they are present, absent, functional, in process, in disrepair, or have been abandoned. Questions about whether

representation has or will actually serve the residents, how climate change will continue to affect the county, what Virginia's continued reliance on and investment in fossil fuels means, and economic development all feature prominently in the ways people discuss the future in and of Charles City County. Though the two power plants were (and are) welcomed by the Charles City County government because of their supposed economic benefits, other residents of the county discuss them in more complex and more critical ways.

One of the ways the future figures into the conversation about these two facilities, as well as about natural gas in general in Virginia, is the emphasis of the continued reliance on fossil fuels in the Virginia Energy Plan (VEP). The VEP details the necessity of completely eliminating greenhouse gas emissions and sets a long timeline (30 years) over which the use of fossil fuels for energy in Virginia will be reduced, setting them to be phased out entirely by 2050. However, it also emphasizes the need to ensure that the electric grid will continue to be reliable, and provides loopholes that would allow natural gas to be used past 2050 if needed to ensure that energy supply is able to meet Virginia's demand, especially industrial, military, and consumer needs (Department of Mines, Minerals, and Trade 2018: 9). The stated need for reliability implicitly represents an expectation of potential future energy scarcity, as well as an assumption that reaching a state of energy security is possible at all and that demand for energy, and thus need for energy security, will continue to grow.

In his 2011 book *Carbon Democracy,* Timothy Mitchell critiques these notions of scarcity and energy security. His discussion of the critical role oil interests play in shaping government policy to support the oil industry in the Middle East and around the entire world (226-230) is clearly applicable to the central role of fossil fuels in the Virginia Energy Plan. The need for increased energy security is one that is echoed and pushed by energy companies in

Virginia (examples of companies that explicitly state the need for security include Dominion Energy, American Electric Power, and Appalachian Power, among others). This need represents an assumption about the future: industrial production, connectivity, transportation, and daily use of electricity (to varying degrees) will continue to exist in the future, and that a secure and reliable source of energy (fossil fuels, solar, et cetera) is needed to fulfill those demands. This assumption can be seen in the emphasis of the long term (30 years and more) plans for energy production detailed in Virginia energy policy and the growth plans made by energy companies. Paired with this assumption is an anxiety that the world will *not* continue to rely on electricity or that the energy supply will not be reliable because of drastic changes or events. Though it is not explicitly stated in the Virginia Energy Plan, by residents of Charles City County, or by any of the groups, institutions, and people involved in the argument over the two power plants, this anxiety permeated the discussion, especially when the conversation turned to climate change.

The image included below presents another way that the future is present in the contention surrounding the power plants. It features a sign made by Concerned Citizens of Charles City County in response to the C4GT and Chickahominy power facilities. This sign communicates opposition to the power plants and two assertions about what the future should look like in Charles City County. The first, which is that Charles City County should be "kept beautiful", draws attention to the environmental impacts of the proposed plants; in addition to polluting the air, water, and soil, the power plants would feature prominently in the landscape. This echoes a statement made by La'Veesha Rollins in a video I discussed earlier; she says that Charles City County is known for its beauty and its history, and that she would "hate for that to be shadowed because we're gonna be now known for two power plants that are emitting a huge amount of pollution" (Chesapeake Bay Foundation 2020: 0:50). The statements made by the sign

and by Rollins are highlighting the importance of preserving the environment of Charles City County, which is repeatedly presented as “pristine” because of the lack of development. The second thing the sign communicates is that the residents of Charles City County want different and better economic opportunities. This statement presents both a desire for economic and infrastructural development and an assertion that said development should not come with negative health and environmental impacts, as the power plants do. The statement is also asserting that the primary purpose of any development in Charles City County should be to fulfill needs of the residents of the county, which neither power plant would do.

Image description: Flyer made by Concerned Citizens of Charles City County. First line of text: No Power Plant. Second line of text: Keep Charles City Beautiful. Third line of text: We want better economic options!

More ideas about what the future of Charles City County will or should look like are expressed in the County Board of Supervisors’ economic development plan for Route 106, the site of a proposed industrial park. The document is interesting in part because it was released in

2018, which is before awareness of the C4GT and Chickahominy plants and knowledge about their environmental impacts became widespread. Because of this, it offers a way to look at what residents of the county want outside of the context of the debate about the power plants. As part of the Route 106 plan, a sample of residents of the county were asked a number of questions about what they like and do not like about the county, what changes they would like to see, and what they thought the county would look like in twenty years (Charles City County Board of Supervisors 2018: 67-73). The answers to these questions are a direct reflection of what the residents think is worthy of protection in the county as well as how they envision the long-term future of the county. They include appreciation of the rural landscape of the county, desire for large-scale employers, a grocery store, more access to the internet, healthcare options, and improvements to water infrastructure and roads. Additionally, the responses repeatedly indicated that the residents were not in favor of "heavy" industrial development, which is what both of the power plants are classified as (2018: 71).

The statements made by the sign and in the answers to the questions asked in the Route 106 development plan are indicative of some of the things that fossil fuel and other infrastructures signify in Charles City County; economic opportunities, a more just future, increased access to necessities like food and water, and a commitment to improving the lives of people who live in the county. However, they also indicate that certain infrastructures signify health risks, environmental degradation, exploitation and burden, and disruption of Charles City County's landscape and the residents' lives. The two power plants and associated infrastructures in particular signify a commitment on the state's part to continued use of fossil fuels and a slow transition to "renewable" energy, even in the face of increasingly rapid climate change.

Finally, the responses of the residents to the two power plants, the Header Improvement Projects, and Virginia's overall acceptance and continued use of fossil fuels in general signify anxieties about the future, especially related to climate change. According to a tweet from Dr. Mary Finley-Brook, which the Concerned Citizens of Charles City County account quote tweeted, the Virginia State Corporation Commission stated in a hearing about the Header Improvement Project that natural gas was expected to be in use for 30-70 more years in Virginia (@concerned_city "30-70 years of fossil fuels?", May 13, 2020). This statement is a stark contrast with the image presented in the Virginia Energy Plan, which sets 2050 as the date by which all fossil fuels will be phased out. However, as I discussed earlier, the Virginia Energy Plan includes a significant amount of leeway for continued use of natural gas by emphasizing the importance of economic development and the reliability of the electrical grid, so the two timelines set by different state agencies are not necessarily contradictory.

As I discussed above, people's opinions, institutional plans, and the contention around the two proposed power plants are all related to the ways they envision their future, the future of Charles City County, and the future of the world in general. In Charles City County, this presents itself as opposition to the two power plants and associated infrastructure, as well as a wish for improved infrastructure to serve the residents and economic opportunities that do not have negative impacts. There is a clear difference between the fossil fuel infrastructures that will produce energy for data centers and military facilities outside of the county and infrastructure that would serve the needs of the residents. In opposing the two power plants, residents of Charles City County are making a clear statement about what they want the county to be like in the future.

Conclusion

Ultimately, the decision about whether or not the C4GT and Chickahominy power plants will be permitted to continue construction and become operational has not yet been made. The cancellation of the Header Improvement Project, which would have supplied the natural gas for the two facilities, has made their position more precarious than it was before. In order to maintain their permits, both facilities have to prove that they have the funding to finish construction and that they will have a supplier by the date they plan to become operational, and it is possible that one or both facilities will not be able to do so. However, they could potentially be approved at any time. As part of my thesis, I have aimed to push back against the deep and violent assumption that the construction of any infrastructural project (and the ones in Charles City County specifically) is inevitable. The tenuous position of the two power plants reflects this; though they may one day be built, the residents of Charles City County present them with a significant challenge, and there are numerous avenues of opposition that have not yet been explored that could inhibit or halt their construction as well. I have approached my exploration of the C4GT and Chickahominy facilities with this in mind. I have also discussed some of the relationalities this infrastructure is involved in and the activities, experiences, and impacts associated with them from several perspectives in and out of Charles City County.

In this thesis, I have made two overarching arguments. First, I argued that Charles City County is an example of how fossil fuel (and any) infrastructure is unevenly distributed among groups of people, producing environmental racism and injustice in patterns that reflect the unequal differentiations produced in and necessary for racial capitalism. As part of this argument, I also argued that the incorporation of environmental justice into Virginia's energy policy has not (and will not) end environmental racism or injustice. Instead, doing so has

incorporated it into the standardized decision making process for energy infrastructure projects, turning it into a seemingly neutral method of deciding which people and places will be the sites of which infrastructure. Second, I have argued that the argument surrounding C4GT and the Chickahominy power station are reflective of a general contention about how the effects of fossil fuel infrastructure are defined and how groups come to be described as vulnerable. Additionally, the language and strategies employed in this argument are indicative of pervasive anxieties and sentiments that are not exclusive to Charles City County. I have explored both of these arguments in this paper through three sections, each with their own smaller arguments. First, I discussed the concept of "environmental justice communities". Second, I examined some of the competing forms of environmental knowledge and descriptions of groups of people forwarded by various people and institutions. Finally, I explored some of the things that different infrastructures signify and how those are present in different visions of the future.

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